Preface

This volume contains seven expository articles and concerns three facets of Riemann–Finsler geometry that have undergone important recent developments:

1. The concept of volumes on normed spaces and Finsler manifolds, and crystalline motion by mean curvature in phase transitions.

2. The essential role played by Finsler metrics in complex manifold theory, together with the resolution of the Kobayashi conjecture and a special case of the Green–Griffiths conjecture.

3. The significance of the flag, Ricci, and S-curvatures of Finsler metrics, as well as the Sphere Theorem for nonreversible Finsler structures.

Conspicuously absent from the above are two highly geometrical areas: Bryant's use of exterior differential systems to understand Finsler metrics of constant flag curvature, and Foulon's dynamical systems approach to Finsler geometry. They are not included here because reasonable expositions already exist in a special Chern issue of the *Houston Journal of Mathematics* **28** (2002), 221–262 (Bryant) and 263–292 (Foulon).

Our goal is to render the aforementioned developments accessible to the differential geometry community at large. It is not our intention to present an encyclopedic picture of the field. What we do covet are concrete examples, instructive graphics, meaningful computations, and care in organizing technical arguments. The resulting articles appear to have met these criteria at an above-average level.

All the articles have been refereed. In fact, a total of 26 referee reports were obtained, some addressing the mathematics, others critiquing expository matters. After a few rounds of revision, each article was line-edited by at least one mathematician who is *not* familiar with the topic in question, in the hope that this would uncover most typographical mistakes. It is certain that, in spite of these attempts at quality control, layers of blemishes are still awaiting their turn to surface. We urge readers to bring those mistakes to the attention of one of us (Bao).

Thanks are due all reviewers who generously donated their time. We are also grateful to Dr. Silvio Levy, Editor of the MSRI Series, for his prompt responses to all our queries.

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